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M. E. McIVER, Editor

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A. A. E. Commended

FOR "ALERTING PROFESSIONAL EMPLOYEES"

IN THE March, 1948 issue of PROFESSIONAL ENGINEER, A.A.E. published a warning that "Timely Intervention" is still the key to "freedom of association." The article explained why benefits of the Taft-Hartley Act will not automatically accrue to "professional employees," and why the National Labor Relations Board cannot be expected to "poll the professional employees and to ascertain their desires—whether the issue is raised or not," by the professional employees, as one state society of professional engineers rashly advised. A.A.E. urged professional employees to safeguard their freedom of association by advancing claims to professional status *at the proper time.*

Copies of the article, "Timely Intervention" were sent to administrative officers of the NLRB and to members of Congress who were responsible for writing into the Taft-Hartley Act provisions intended to protect professional employees from being included, against their will, in mixed bargaining units. One of the letters was referred to the Joint Congressional Committee on Labor Management Relations for study and comment. With permission, we quote verbatim the reply of Thomas E. Shroyer, Chief Counsel of the Committee:

"Senator Taft has referred to me your letter concerning the status and rights of professional employees under the Labor-Management Relations Act of 1947, and the article in PROFESSIONAL ENGINEER entitled "Timely Intervention."

"As part of its study program, the Joint Committee on Labor-Management Relations is giving continuous consideration to the question of how best the rights of professional employees under the new law may be protected. As a practical matter, it does not seem feasible at the present time to require the Board to examine on its own initiative the personal qualifications of thousands of technical employees in order to avoid the possibility of illegally including some few who might have a professional status within the meaning of the Act. It can easily be seen that such a requirement would cause even more delay in disposing of cases than is the case at present. I may add that your organization can perform a valuable service in alerting professional employees as to their rights under the Act so that they, aware of these rights, may advance their claims to professional status before the Board and receive the protection to which they are entitled."

SOCIAL SECURITY FOR *Engineers*

Engineers who are covered by Federal Old Age and Survivors' insurance are advised to keep themselves currently informed on the status of their social security accounts.

SOME are and some are not! That's how engineers are protected by Social Security. The self-employed are not covered by the law. Those working as employees generally are. There are exceptions. Engineers employed by agencies and departments of the Federal government are not covered by social security; they have their own pension plan. There are other "non-profit" civic, educational, and social agencies which employ engineers that are exempt—technical societies, safety councils, etc.

The self-employed were not originally included principally because of the problems associated with collection of the payroll tax and those related to the reporting of engineers' earnings on a current basis. Since 1940, we have had considerable experience with pay-as-you-go methods of tax reporting and collection. Also further studies of the administrative problems of covering the self-employed into Social Security have prompted both the Treasury Department, which collects the taxes, and the Social Security Administration which pays the benefits, to state that it is now feasible to include the self-employed within Social Security.

Engineers, when they are employed, that is, where an employed relationship exists, are included by the law. When so employed, they are building up benefit rights on the basis of the salary reports filed with the government by their employers. Some engineers, especially those in high salary brackets, may be indifferent to these benefits. They may regard the system under which wage earners are building basic security as something that doesn't greatly concern them.

High salaried, low salaried, or self-employed engineers . . . all are subject to the risks of life—the "rainy days." All face some degree of insecurity in old age when their earning power may be diminished or terminated, and the chances of living beyond age 65 are increasing every year. Accidents and deaths are not respecters of persons and the best of plans proverbially go awry. Sickness, hospitals, funerals, lawsuits, accidents, prolonged unemployment, may eat up their savings and leave them or their families little or nothing to fall back on in their old age or if death occurs prematurely.

Engineers are trained to plan for all foreseeable contingencies. The probability of rainy days occurring in the lives of engineers is too great to be left to luck. So, Social Security (old-age and survivors' insurance) should appeal to engineers since it is the basis for planning protection against rainy days, where the interruption of income is due to old age or death.

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The benefits payable by Old-Age and Survivors' Insurance (Social Security) are not insignificant even for an engineer who may carry $10,000 in private insurance. $10,000 in private insurance will, in some instances, provide $57.50 a month for 18 years as retirement benefits. That is considered a great deal. Yet Old-Age and Survivors' Insurance may provide as much as $85.00 a month for many years at a stretch. Many an Old-Age and Survivors' Insurance policy with Uncle Sam will total, over the years, ten or fifteen thousand dollars. So the benefits the engineer may get from Old-Age and Survivors' Insurance are by no means insignificant. They represent basic security. On this foundation, the engineer can build additional security for himself and his family through the purchase of private insurance, the ownership of a house, or through other forms of savings or investment.

Let's take the case of a man whom we will call James Boyd. He was Chief Engineer for a chemical works. He had not given much thought to the one percent deduction from the first $3,000 of his salary or to what it meant in the way of protection to his family. He carried only a five thousand dollar insurance policy, as most of Boyd's savings had gone into building a fine house. Then, he died suddenly—in the prime of his life. When her husband died, Mrs. Boyd, with two children—eight and six—to support was at a loss what to do. She could not bear to part with the house, and yet, with the taxes, heating, repairs and the many small expenses which home-owning entails, how could she hope to keep it? The $5,000 insurance wouldn't go very far. She decided to take in two paying guests, but it was Old-Age and Survivors' Insurance (Social Security) that really solved Mrs. Boyd's problem. Based on an average monthly wage of $250 that equals the first $3,000 a year on which he was taxed and ten years' work, James Boyd's basic benefit protection amounted to $44.00 a month. However, the Social Security law provided more substantial monthly protection to the widow and children. Using the $44.00 as a base, the law in this case made it possible to pay $33.00 a month to the widow as long as she had a child in her care under the age of 18. Also, the law stated that each child would receive a monthly benefit. Mrs. Boyd learned that she could collect a total of $77.00 a month for the next ten years for herself and her two children; that is, until the elder child was 18. Then during the following two years, she will receive $55.00 a month, that is $33.00 for herself and $22.00 for the youngest child.

By the time these payments stop, they will have amounted to more than twice the amount of private insurance Mr. Boyd carried.

When the widow reaches the age 65, the monthly benefits will begin again, if she has not remarried. She will draw widow's benefits of $33.00 a month. They will continue until her death. If she dies at age 75, Mrs. Boyd will have received about $14,520, nearly three times the amount of insurance he carried.

Benefits payable to the Boyd's represented a great bargain in protection on the basis of Mr. Boyd's 1% contribution and his employer's tax of 1%. Astute private insurance men have estimated that if the self-employed were brought into Social Security and if they paid both employee and employers' contributions and the combined rate was finally raised to a total of 6% of payroll, they would not be paying more for the annuity and adversity protection than they would have to pay if purchased from a private insurance company; in other words, you get your money's worth.

The experience of the Boyds shows how protection is extended to the family in case of the premature death of an engineer who may be the head of a family.

But there are other types of benefits payable. Social Security (Old-Age and Survivors' Insurance) is in reality protection for the whole family. Let us then in summary see how you and your family are protected.

You can, if you desire, retire at 65 and draw monthly benefits as long as you live. Your wife will receive monthly retirement benefits when she reaches age 65. Your widow, when she reaches age 65, will receive monthly benefits as long as she lives. Your parents may receive monthly benefits when they reach age 65 should you die, no matter how old you are when you die. As we have seen in the Boyd's case, his young widow, while she has children in her care, may receive monthly benefits until the children reach 18. Then, finally, his widow or the person who pays his burial expenses may receive a lump sum.

As we have mentioned, Old-Age and Survivors' Insurance does not protect the engineer who is in business for himself if he is unincorporated. However, if he is an officer of a corporation, he is "covered".

The Social Security Administration and the Small Business Committees in Congress have recognized that self-employed persons and their families also need the protection which social security (Old-Age and Survivors' Insurance) gives to persons and families now covered by the law. An engineer may alternate between "covered" and "non-covered" status, depending on whether he is working for himself or whether he is working in "covered" employment. Engineers who follow this practice stand to lose security benefit rights when they leave covered employment and become self-employed. The same sort of loss of "coverage" occurs when engineers are intermittently employed by the Federal government, or some other "non-covered" agency.

Proposals have been made to otherwise increase the amount and kind of protection which an amended social security law should give. The benefit rate was set in 1939. Since then, the dollar has become worth less than half its 1939 value. Also, it has been found that the percentage by which social security payments should replace the loss of salaries in case of death or retirement, should be increased by revising upward

the social security benefit formula. This is needed so as to provide a general minimum of protection which is the objective of a social insurance program. Various studies have shown that the present benefit scale, even in terms of 1939 wage and price levels, provides too small a replacement of wages and salaries lost through death or retirement. The retirement age of women might be reduced to 60; this would apply to working women, wives and widows. Extended disability protection should be added. It is among the important causes of insecurity and dependency.

In short, there is a strong movement to revise old-age and survivors' insurance (Social Security) in order that it may be more significant in giving protection where it becomes necessary to replace the salary lost through old age, death, or disability.

Every engineer who has worked in "covered" agencies, should investigate the status of his "Old Age and Survivors' Insurance Account". Any regional office of the Federal Security Agency (Social Security Administration) will provide a postcard (Form OAR-7004(10-46)) which, properly filled in and mailed to the Social Security Administration, Candler Building, Baltimore 2, Md., will bring a statement of the wages recorded in an individual's Old-Age and Survivors' Insurance Account. You need this information, first to be sure that there is a correct record of your earnings in covered employment. You need it, also, to estimate the benefits that will be yours when you become eligible for retirement, and the protection you have already established for your survivors should you die before reaching retirement age.

Two very valuable pamphlets are published by the Social Security Administration. These will enable you to estimate benefits. One is called "Federal Social Security—How You and Your Family Are Protected by Old-Age and Survivors' Insurance" and the other is titled "Federal Old-Age & Survivors' Insurance—Insurance for Workers and Their Families" (I.S.C.35). These booklets explain how you become "fully insured" and how your benefits vary in accordance with your "average monthly wage" and the number of years spent in covered employment. It would be wise for every engineer to secure these booklets. Send in Form OAR-7004 and learn how many quarters of coverage you have earned, what is the total of earnings in these covered jobs already recorded in your social security account; how many additional quarters of coverage you need to be "fully insured for life". With this knowledge the individual can more intelligently draw up a comprehensive plan for additional protection through private insurance. He will also safeguard survivors against the possibility that there are errors in his account which might hamper or retard their efforts to secure benefits after his death. Social security insurance deserves the same business-like attention that a private policy warrants. We suggest that all engineers keep themselves currently informed on the status of their social security accounts.

NLRB ORDERS FIRST DECERTIFICATION ELECTION AMONG PROFESSIONAL EMPLOYEES

Illinois Bell Telephone Co. professional employees permitted to vote on issue of severance from a unit hitherto approved by the Board, and represented by International Brotherhood of Electrical Workers.

UNANIMOUSLY the NLRB ruled that a group of plant engineers and right-of-way agents for a telephone company are "professional employees" under the Labor Management Relations Act of 1947. Accordingly, it ordered a decertification election among a group of engineers and right-of-way agents in the plant department of the Illinois Bell Telephone Company of Chicago. This decision is interesting because the case is the first of its kind *initiated* after the passage of the Taft-Hartley Act, to be decided by the NLRB, and also because certain classifications of technical employees included in the group which raised this question of representation had tried unsuccessfully to induce the Board to sever them from a heterogeneous unit while the Wagner Act was in effect.

In TECHNOLOGISTS' STAKE IN THE WAGNER ACT (pages 148-150) will be found a detailed story of the earlier labor controversy in which the Illinois Bell's Associated Telephone Engineers were unable to convince the NLRB that a "question of representation" *existed,* and hence were unable to prove that they were "professional employees" with special interests which warranted their severance from a mixed unit which the Board had previously found "appropriate".

In the current case, the issues were fairly clear and uncomplicated. The "professional employees" based their claims to such status on subsection (a) of Section 2(12) of the Taft-Hartley Act; i.e., they claimed status as "professional employees" strictly on grounds of the character of *work* they performed which met the requirements listed in subsection (a) of the definition of professional employees. Furthermore, they did not claim to be a "labor organization" and did not seek recognition as a unit appropriate for the purposes of collective bargaining. They asked only to be recognized as "professional employees" within the meaning of Sec. 2(12)(a) and to be severed from a heterogeneous unit. There was authority for such action in Sec. 9(b)(1) and Sec. 9(c) which provide respectively that professional employees cannot be included by the Board in mixed units without their consent, and that individuals and groups of employees may file petitions to decertify a representative. Because they did not claim to be a labor organization, and did not attempt to exercise the rights of labor organizations it was not necessary for them to conform to the "filing requirements" stated in Sec. 9(f,g,h).

Strengthening the claims of these professional employees, Sec. 9(b)

(2) decrees that previous findings of the Board that an existing unit is "appropriate" shall not constitute a bar to such action as was taken by the Illinois Bell professional employees, and Sec. 7 of the Act specifically directs that employees shall be free to "refrain" from collective activities.

If the plant engineers and right-of-way men had attempted to form their own bargaining unit, instead of seeking severance only, the issue would have been less clear. Then the Board would have found it necessary to ascertain whether these professional employees had sufficient mutuality of interest to constitute a unit appropriate for the purposes of collective bargaining and the filing requirements would have applied. But the group asked nothing more than an opportunity to vote, in a special unit, on the issue of their continued representation by the IBEW. The petition was aimed at decertification of their official bargaining representative. Despite its earlier approval of the mixed unit, under the Wagner Act, the Board was required by Sec. 9(b)(2) to apply to these workers the tests for professional status set up in Sec. 2(12).

If in the student engineer category there had been *graduate* engineers engaged in work which could not be adjudged "professional" (as "professional" status is defined in subsection (a) of Sec. 2(12) of the Taft-Hartley Act) the Board would have found it necessary to appraise the personal qualifications of such individuals and their relation to other "professional employees" under Sec. 2(12) subsection (b). Any graduate engineer, engaged in sub-professional work, would have been entitled to the privileges accorded "professional employees" if it could be shown that his work was related to that of professional employees and supervised by them, and that it constituted experience leading to recognition as a professional employee.

In this case the Board was able to make its decision on basis of the *kind of work* done by the group. It ruled that "their jobs measured up to the Act's requirements for professionals" in spite of the fact that "the company does not require them to be college graduates or to obtain professional licenses under state laws." The Board found that "student engineers, assistant engineers, engineers, and senior engineers" employed by the company were all professional employees, within the meaning of the Act, because "employees from all four categories of plant engineers participate in the completion" of complicated projects handled by "plant engineers". In other words, the Board very liberally interpreted subsection (a) of Sec. 2(12) and thus found the *work* of "student engineers" as well as the work of "engineers" and "senior engineers" professional. The Board reached this decision over the objections of the IBEW that the "plant engineers" and "right-of-way" men really constituted a "labor organization" and were thus subject to the filing requirements found in Sec. 9 subsection f,g, & h. The IBEW claimed that the petitioners in this case were identical with the Associated Telephone Engineers who had unsuccessfully sought severance from the established unit in an

earlier case under the Wagner Act. They contended that the petitioning employees were not "professional employees" within the meaning of the Act because the company did not require an academic degree or a certificate of registration of candidates for positions as plant engineers and right-of-way men.

Any fair-minded observer, studying this case, will be convinced that the NLRB is conscientiously trying to give professional employees full benefit of the provisions of the Act which define their special rights. It must be remembered, however, that cases will arise in which the issues are not so clear cut as in this "question of representation"—particularly, cases in which the presence of "professional employees" may not be suspected by the Board unless those employees at the proper time advance claims to professional status.

Psychology, GREATEST NEED OF THE ENGINEER

E. J. DAVIS, Life Member of A.A.E.

This is the second of a series of articles whose purpose is to help the engineer, in a fruitful manner, to acquire a salary commensurate with his education and intelligence.

THE third law of psychology is: "Men are not joined together and united by their *love* of the same things. Men are united by their *hatred* of the same things." That is the reason for all of this difficulty in getting the world organized for peace. That is the reason for the solid, united front which America produced in the past war. Men love peace; so they won't unite to obtain a lasting peace. Men hate having their heads bashed in; so they immediately unite to prevent that dreaded phenomenon. By the same token, it is extremely difficult, if not impossible, to unite engineers to obtain higher wages, better working conditions, and continuous, progressive flow of knowledge. Tragically, it is necessary for engineers to feel the sting of low salaries and of discouraging working conditions. Yes, today it is quite necessary for them to acquire personal contact with that sort of thing before they will unite to smash those things which they despise. Perhaps, as the human mind develops into a higher plane, the engineer will realize that the workings of the present-day human mind do have flaws in those workings, and he will fight as an individual and as a team to climb upward without first slipping downward into those conditions which he actually dislikes. Laws are made by men, and laws can be set aside by men. It will be a great day when engineers set aside the third law of psychology.

The fourth law of psychology states that no person places a high value on those things which are too easily acquired. A professional engineer who is working for $25.00 a day is doing a great favor for everyone except himself. Does the employer believe that the employer is getting a good engineer "cheap"? .On the contrary; the employer believes that the employer is getting a cheap engineer, and is paying that cheap engineer "plenty" for what he is worth. If you are inclined to feel that the above is not true, consider the case of the bricklayer. He now makes $25.00 per day, just the same as does the engineer in question. The professional engineer spent $5000.00 on his education; the bricklayer didn't spend a dime. So, which is smarter? You be the judge. Whichever your answer may be, it will bring up the Fifth Law of psychology which gives us the answer to that old but important question, "What is a man worth?" The answer to that question will raise the standard of income of every engineer in this nation. Here it is: "A man is worth exactly what he can GET." Let's be specific. Some professional engineers are practicing as consultants and they are getting $100.00 per day. Are they worth it? Yes, they are worth it. WHY? Because their employers are *paying* it. Last year Betty Hutton received $25,000.00 per week for appearing in a Miami, Florida, nite club. Was Betty worth $25,000.00 a week? Very much so, for Betty received $25,000.00 per week and that nite club is still doing business.

Law number six states, "Before a mistake can be corrected it must be admitted." This is the tall, thick stone wall which causes the flat spot on the top of the engineer's head!! The engineer can see the mistake in a flash; he knows immediately how to correct it, but before he can get any action started he is face-to-face with that ugly word "mistake". No one likes that word; employers NOT excepted; so, instead of spending weeks and months attempting to find some person who will admit the existence of a mistake, let the engineer stop pushing against that stone wall; let the engineer forget about the word "mistake", and let him substitute the idea of using a "better method" for improving the situation at hand. This will eliminate the use of the word "mistake". This will not only get the situation back to normal, but will also give the engineer a head start at any popularity contest. If this seems contradictory, bear in mind that almost everyone quickly learns of the existence of a mistake. In short, we are quick to admit to ourselves that a mistake exists, but no one likes to admit a mistake to others. Therefore, by the use of substitution, the engineer can boost his standing as a good engineer and as a popular person.

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PART II

AMERICAN ASSOCIATION OF ENGINEERS

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4. Wagner Act—Campaign to Amend

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Greetings, Edmund J. Fitzmaurice. (p. 1, Dec. 1945)
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2. Granddad Bill (each issue)

3. Professional Engineer—Index

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Vols. 24-26. (p. 25, Sept. 1947)
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Autonomy and Classification. (p. 30-36, Sept. 1945)
Professional Status. (p. 47-48, June 1946)
Status of Time Study Engineers. (p. 45, Sept. 1946)
Who Is a Professional Worker? (p. 31-32, Dec. 1945)
Entire Issue (March, 1946).

Important Meetings

University of Southern California Honors Dr. Fred D. Fagg, Jr.

At the inauguration of Dr. Fred D. Fagg, Jr., as the sixth president of the University of Southern California on Friday, June 11th, American Association of Engineers was represented by Donald M. Baker, consulting engineer, and a great admirer of the University's new president.

National Conference on the Education of Teachers

E. C. Shuman, past president and director of A.A.E., attended the conference on education of teachers held at Bowling Green State University, Ohio, June 30 to July 3, under sponsorship of the National Commission on Teacher Education and Professional Standards.

National Council of State Boards of Engineering Examiners

C. J. Ullrich, director and past president of A.A.E., will be the Association's official representative at the 27th annual meeting of the NCSBEE in Salt Lake City, August 26-28, 1948.

Pacific Regional Conference on UNESCO

Alfred Mullikin, sanitary engineer, with the Corps of Engineers, Headquarters 6th Army, Presidio of San Francisco, attended several of the UNESCO sessions in San Francisco, May 13-15, as a representative of American Association of Engineers. Mr. Mullikin has furnished detailed reports of the proceedings which were published in regional papers. He says that an engineer's lot in life is too exacting and his contribution to society is of such a specific character that members of the profession seldom have opportunity to participate in the purely cultural affairs of mankind. He also says that he valued the opportunity to observe at close range the activities of UNESCO and applauds the efforts of A.A.E. to awaken engineers to their civic and social responsibilities.

Inter-Professions Conference on Education for Professional Responsibility

Late in November, 1947, eleven top-flight educators met in New York and planned a three-day "Inter-Professions Conference on Education for Professional Responsibility." The meeting was sponsored by the Carnegie Corporation. The planning committee chose 19 educators from professional schools representing law, medicine, engineering, religion and business administration, to keynote the several sessions.

Four main points were developed in the series of addresses and roundtable discussions: How to train the professional man to deal with specific problems in his field; how to train him to see a specific problem in relation to its social, legal or other implications; how to make him a good citizen; and how to train him to be prepared for professional or social change.

Buck Hill Falls in the Pennsylvania Poconos was the setting for this conference attended by approximately 100 distinguished educators, April 12 to 14.

University of Arizona, Inauguration Ceremony

Vic H. Housholder of Phoenix, past president of A.A.E., represented the Association at the inauguration of James Byron McCormick as President of the University of Arizona in Tucson, Wednesday, May 5th.

Case Institute of Technology, Honors New President

Paul S. Holbrook, Technical Commissioner of the Federal Mediation and Conciliation Service, represented A.A.E. at the inauguration of President T. Keith Glennan as President, May 20 and 21, 1948, in Cleveland. The theme of the two-day meeting was: The increasing responsibility of the scientist and the engineer in public affairs.

Book Reviews

Lighting Design, Parry Moon, Massachusets Institute of Technology, and Domina Eberle Spencer, Brown Univerity. 1948. Addison-Wesley Press Inc. 482 pages, plus index. Much graphic material; colored plates. $5.00.

This is a crisp, authoritative textbook for engineering and architectural students, and a handbook for practicing engineers. The material has been used at Massachusetts Institute of Technology and Tufts College; adapted to a 15 week course, three lectures per week. Emphasizes design which is conducive to "lighting for seeing."

Fundamentals of Soil Mechanics, Donald W. Taylor, Associate Professor of Soil Mechanics, Massachusetts Institute of Technology. 1948. John Wiley & Sons, Inc. 700 pages. Illustrated. $6.00.

This textbook admirably correlates fundamental theories with their application in laboratory and field problems. Adapted to use in undergraduate courses for students who have working knowledge of fundamental mechanics; comprehensive enough to be useful at graduate level. Also valuable as reference to practicing engineers, especially those in the field of foundation engineering and allied work in soil testing.

Applied Physics: Electronics, Optics, Metallurgy. One of the books in the "Science in World War II" series prepared by Office of Scientific Research and Development. Edited by C. G. Suits, George R. Harrison, and Louis Jordan. Boston: Atlantic-Little, Brown, 1948. Illustrated; 456 pages. $6.00.

Each book in this series describes the contribution made by one or more major divisions of the Office of Scientific Research and Development. This volume in the series reports to the public the work done on optics, electronics and metallurgy, evaluating technical accomplishments both in this country and in England. Its semi-popular style makes the book understandable by laymen who have even a superficial knowledge of technical terms. Authors and editors of this volume receive no royalty from its sale, and the publisher has waived rights, under the copyright after ten years from the publication date. The entire series may be considered a public service project.

Chemistry (Science in World War II Series), Edited by W. A. Noyes, Jr., for Office of Scientific Research and Development. 524 pages; illustrated. Boston: Atlantic-Little, Brown. 1948. $6.00.

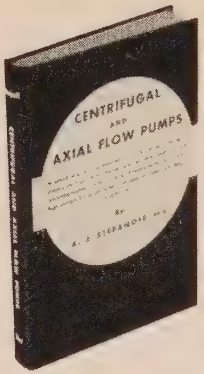
A history of the work done by chemists in World War II, which contains invaluable information for professional chemists, but, avoiding extremely technical details, can be read with interest by laymen.

Physics of Metals and Alloys, An Introduction to, Dr. Walter Boas, formerly senior lecturer in physical metallurgy, University of Melbourne, principal research officer, Section of Tribophysics, Council for Scientific and Industrial Research. First U.S.A. edition, 1947. John Wiley & Sons, Inc. $3.50.

This text summarizes a series of lectures on physical metallurgy; its essential principle is that "the properties and arrangement of the crystals determine the properties of poly-crystalline aggregates." A "find" for metallurgists and chemists.

Chambers's **Mineralogical Dictionary,** Chemical Publishing, Inc., 1948. Forty color plates; 47 pages. $4.75.

More than 1400 mineralogical terms are included in this dictionary. It lists the chemical composition, crystal form, physical and chemical properties, occurrences and uses for these minerals. A valuable reference book for jewelers, chemists, geologists, mineralogists and metallurgists. Two hundred minerals in their original colors are depicted in the 40 plates which illustrate the volume.



1948 *428 pages* *$7.50*

First book-length study of

Centrifugal and Axial Flow Pumps

By A. J. Stepanoff, Ph.D.
Ingersoll-Rand Company

Newly published—written by a leader in the field, this is one of the most complete working manuals of theory, design and application ever available to pump engineers in this country.

Dr. Stepanoff covers the theoretical background necessary for understanding recent developments, and then gives a comprehensive account of modern design in pumps—impellers, pump casings, and pump shaft design for critical speeds, as well as cavitation, axial thrust, and losses in centrifugal pumps.

He also discusses the problems encountered in operating centrifugal and axial flow pumps and deals with the precautions necessary to insure satisfactory operation.

For sale by A. A. E. Book Dept.

8 So. Michigan Ave., Chicago 3, Ill.

Differential Equations of Physics, Introduction to the, L. Hopf, Professor of the Aachen Institute of Technology, translated by Walter Nef, Professor at the University of Fribourg, Switzerland. 160 pages. Copyright, 1948, by Dover Publications, Inc. $1.95.

Written from the standpoint of engineers and physicists, this book requires of its readers only a mathematical background of elementary calculus. Basic concepts of vector calculus and vector analysis are introduced gradually wherever they arise naturally from the problems under discussion.

Photoelasticity, Volume II, Max Mark Frocht, Ph.D., Research Professor of Mechanics, Director of Experimental Stress Analysis, Illinois Institute of Technology, and Consultant of Armour Research Foundation. 1948. John Wiley & Sons, Inc. 505 pages. Lavishly illustrated. $10.00.

This new volume supplements the basic theory set forth in Volume I of the series which was published in 1941. The earlier volume was an exposition of theoretical principles and experimental procedures for the exploration of two-dimensional stress systems by the photoelasticity method. Volume II covers the more advanced principles; delves into the influence of the physical constants on the state of stress in two dimensions; emphasizes the Numerical Solution of Laplace's equations; explores the theory and technique of three-dimensional photoelasticity with application to stress concentration.

Industrial Electronics Reference Book, by Electronic Engineers of the Westinghouse Corporation. 1948. 680 pages 9x11; 1259 illustrations. John Wiley & Sons, Inc. $7.50.

Thirty-six chapters on the basic theory of electrons and the design, application and maintenance of electronic equipment make up this handbook. A valuable guide to engineers who have the responsibility of approving or rejecting industrial electronic equipment. Covers such new developments as electronic instruments, motor control, di-

electric heating of woods and plastics, resistance welding, X-ray and photo electric devices, etc.

Battlefronts of Industry, Westinghouse in World War II, David O. Woodbury. 342 pages. Photographic illustrations. 1948. John Wiley & Sons, Inc., New York. $3.50.

David O. Woodbury is a phenomenon —a highly articulate engineer. With B.A. degrees from Harvard and Leland Stanford Universities, and a B.S. and an M.S. in electrical engineering from Massachusetts Institute of Technology, he is well equipped to interpret engineering to the laity, which he does in this volume describing the contribution made by Westinghouse to the war effort. He presents a great deal of technical information in very palatable form.

Rotary Valve Engines, Marcus C. I. Hunter, British consulting and research engineer. 216 pages. Illustrated. John Wiley & Sons, Inc. 1948. $5.00.

The author covers the history, theory and development of the various rotary and semi-rotary systems used in modern high-speed engines. He emphasizes methods of combatting friction at each stage in design.

Steam, Air and Gas Power (4th Edition) William H. Severns and Howard E. Degler. 509 pages. Profusely illustrated. John Wiley and Sons, Inc. 1948. $4.75.

To this reliable, elementary textbook for courses dealing with heat engineering has been added interesting new material on recent developments, notably data on the theory and economics of the gas turbine.

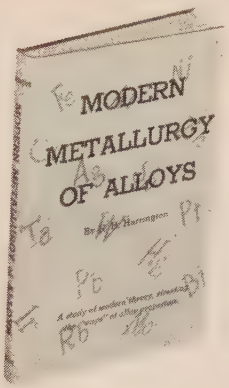
Experimental Stress Analysis, Proceedings of the Society for, Vol. 5, No. 2, 1948. 153 pages. Addison-Wesley Press, Inc. $6.00.

Meeting the high standards of its predecessor No. 2 in Vol. 5 rather emphasizes photoelasticity; there are, however, interesting discussions of prob-

THE MODERN METALLURGY OF ALLOYS

By Dr. R. H. Harrington

Research Metallurgist, General Electric Company



Emphasis is on the "whys" of alloying and solid state behavior in this new book. Based on a series of articles by Dr. Harrington in *Steel Processing,* it interprets metal-working data according to the latest technical knowledge. The first chapter is devoted to definitions of heat-treating terms. Then Dr. Harrington considers the three main alloy fields separately—allotropic modifications, cold-worked solid solutions, and precipitation-hardening alloys.

1948 *208 pages* *$3.50* *5⅝ by 8⅝*

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lems arising in connection with wind tunnels, aircraft construction, and other topics, viewed from the angle of the society's special concern.

Fluorescent and Other Gaseous Discharge Lamps, William E. Forsythe and Elliot Q. Adams. 292 pages. Murray Hill Books, Inc., 1948. $5.00.

Two outstanding physicists of the General Electrical Company offer in this book the bulk of essential information needed for a complete engineering and working knowledge of fluorescent and other gaseous discharge lamps and for solution of technical problems arising in their design and application.

The Crisis of Mankind, University of Minnesota Press, copyright 1947. $3.00.

In a very attractive book, the University of Minnesota has published the text of each of the important addresses delivered during the two-day conference of educators and civic leaders which celebrated the inauguration of the University's new president, James Lewis Morrill, in April 1946. During these two days educators considered the responsibilities of universities in the light of awesome developments which had been made apparent by public awareness of scientific achievement in the field of atomic energy.

Kinematics of Machines, Leon Marr Sahag. 249 pages. The Ronald Press Company, 1948. Generously illustrated. $4.00.

Successful machine design is possible only to those engineers who understand kinematics—who can solve problems involving velocities, accelerations and similar factors. The author, in this text, closely relates kinematic theory with actual mechanisms. The graphic method is given preference over the analytic method.

Color, An Introduction to, Ralph M. Evans, Color Control Department Head, Eastman Kodak Company. 339 pages; 304 illustrations; 15 full-page color plates. John Wiley & Sons, Inc. 1948. $6.00.

Covering the combined effects of the physical properties of light, the properties of vision itself, and the action of the mind in interpreting color, Dr. Evans has presented a complete treatment of the entire field of color in simplified and consistent terminology. A book of interest to photographers, artists, designers, educators, psychologists, and engineers, and likewise to all manufacturers in whose products color is a significant factor.

Guide, Heating, Ventilating, Air Conditioning, 1948. Vol. 26. American Society of Heating and Ventilating Engineers. $7.50.

Encyclopedic, and still concise—this is the newest edition of the Heating and Ventilating Engineer's Bible. 1280 pages in the book proper and a book sized appendix.

Q.E.D., M.I.T. in World War II, John Burchard, Director of Libraries at M.I.T. 354 pages, illustrated. John Wiley & Sons, Inc., 1948. $3.50.

This book describes the contributions of a single privately endowed American Institution, the Massachusetts Institute of Technology, to the victory over the Axis powers. Without boasting, the book memorializes accomplishments of M.I.T. without which the war "would have lasted longer, its destructiveness would have been greater, and its outcome precarious." Some of these accomplishments would not have been made except for the facilities and personnel available at M.I.T.

Trends in Engineering Education, The Columbia Experience, James Kip Finch, Dean, Faculty of Engineering, Columbia University. 140 pages. Columbia University Press, 1948. $2.00.

Dr. Finch explains how Columbia University has met the "challenge to greater service" which must be recognized by the engineering profession. This challenge requires that engineering schools broaden curricula to include basic subjects of general education, and at the same time advance both the fundamentals and the applications of engineering science. The observations of

Columbia's educators deserve the attention of engineering faculties because Columbia has been experimenting in this field for twenty-five or thirty years.

Practical Astronomy (Hosmer's), 4th Edition, 1948, revised by James M. Robbins. 355 pages, much graphic material; many charts and tables. John Wiley & Sons, Inc. $4.50.

Professor Robbins has retained the aim of previous editions to furnish a work in practical astronomy especially adapted to the needs of engineers who should know the subject but who can devote little time to it. He has covered new concepts, new instruments and the most practical aspects of field work.

The Chemical Formulary, Vol. VIII, H. Bennett, editor in chief. 448 pages. Chemical Publishing Co., Inc., 1948. $7.00.

A collection of valuable, timely, practical, commercial formulae and recipes for making thousands of products ranging from fruit cake to fire extinguishers; it is as diversified as the ditty about "ships and shoes and sealing wax and cabbages and kings" and much more utilitarian. Contains valuable index of trade name chemicals, and a directory of firm that manufacture chemicals and supplies.

Principles of Servomechanisms, Gordon S. Brown and Donald P. Campbell. 400 pages, 6 x 9¼; lavish use of tables and charts. John Wiley & Sons, Inc., 1948. $5.00.

Professors Brown and Campbell of M.I.T., in this book, emphasize synthesis of prescribed closed-loop control systems, because of their belief that a direct and penetrating approach to the problem of design is needed. Theory and practice are integrated in this study.

Elementary Steam Power Engineering, Third Edition, Edgar MacNaughton. 640 pages, profusely illustrated. John Wiley & Sons, Inc. 1948. $6.50.

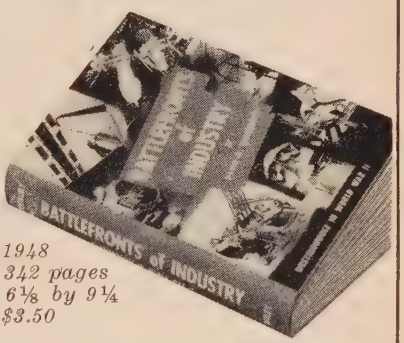
The additions which make this new volume even more valuable than its popular predecessors are: material on

Adventure—

The story of Westinghouse at war is one of high adventure. It is the struggle of men and science against apparently unbeatable odds—and a vindication of the free enterprise system of research and production.

Battlefronts of Industry

By David O. Woodbury



1948
342 pages
6⅛ by 9¼
$3.50

This history of wartime Westinghouse is typical of the entire American industrial scene. As told by a well-known author of books on science, it spotlights the ingenuity of engineers and researchers. Their efforts led to the speedy completion of assignments considered impossible to do at all in peacetime.

As readable as a novel, *Battlefronts of Industry* is at the same time a revelation of the whole American industrial potential. It is well worth reading by every engineer in industry today.

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What one book tells you how to use soil mechanics on your job!

SOIL MECHANICS IN ENGINEERING PRACTICE

By

KARL TERZAGHI and

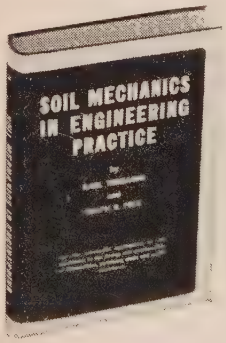
RALPH B. PECK

Never before has a book like this been written. It not only gives the facts and theories of soil mechanics, but also shows how to apply soil mechanics to individual problems.

Part A contains a condensed account of the physical properties of soils. It tells about tests used to identify soils, the hydraulic and mechanical properties of soils, and the physical processes involved in soil drainage.

Part B presents the theories which are needed to solve the most common practical problems.

Part C makes the book unique. It demonstrates the practical consequences of the laws of nature which have been discussed in parts A and B, and it tells how to obtain satisfactory and economical results in earth-work and foundation engineering. Thus the practicing engineer is given a coherent picture of the role that soil mechanics can and should play in his particular type of work.



1948

556 pages

6 by 9¼

$5.50

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thermodynamic principles and turbines; use of Keenan and Keyes latest Steam Tables; an enlarged Millier Chart. Excellent reference list for those who would pursue investigations of particular problems.

Traffic Engineering Functions and Administration, Public Administration Service. 1948. $2.50.

In preparing this treatise, a Joint Committee of American Association of State Highway Officials, American Public Works Association, and Institute of Traffic Engineers, has made available, to traffic engineers and communities, the best possible guidance in solving problems of urban traffic congestion.

Soil Physics, 2nd Edition, 1948, L. D. Baver, Director of the Experiment Station of the Hawaiian Sugar Planters' Association. 398 pages. Many diagrams, charts, & photographs. John Wiley & Sons, Inc. $4.75.

In this book will be found a clear and pleasing treatment of both the fundamental and applied aspects of soil physics, with emphasis on recent developments. The discussion of electron micrographs and of the effect of microorganisms on soil structure is especially interesting. The book contains a complete key to the French, German and Russian literature on the subject of soil physics.

Radar, A Textbook of, by the Staff of the Radiophysics Laboratory, Council for Scientific and Industrial Research, Australia. 580 pages. Angus and Robertson. 1947. 50S (plus duty and mailing costs).

Lifting of the official veil of secrecy which covered activities of the relatively small number of scientists engaged in radar research during the war, enables these scientists to produce a very valuable textbook. The Radiophysics Laboratory, set up in 1939, as a centre of radar research and development for the Allied forces in the Pacific area has given engineers clear and concise information on the latest developments in the microwave region.

TECHNOLOGISTS' STAKE IN THE TAFT-HARTLEY ACT

3rd Instalment

Part V

Enforcement and Administration of the Act and Procedures Related Thereto

Title I of the Taft-Hartley Act (which amends the Wagner Labor Relations Act) sets forth all the powers and duties of the National Labor Relations Board and its General Counsel, except for one rather mechanical function required of the NLRB in Title II, Section 209(b). The requirements and restrictions imposed by Title II place responsibility upon new agencies—the Federal Mediation and Conciliation Service, and its Director, a national Labor-Management Panel, and upon Boards of Inquiry which the President is authorized to appoint in connection with impending strikes or lockouts that might precipitate national emergencies. Title III defines new liabilities of labor unions in connection with damages attributable to illegal strikes, (secondary boycotts and jurisdictional strikes) but enforcement rests with the Courts. We shall have little to say here in regard to administration and enforcement of Title II or III. We are interested primarily in structural changes and new procedures dictated by Title I of the Taft-Hartley Act; particularly those changes that are likely to affect self-organization, designation of representatives, and protection of the "legitimate rights" of technologists (both employers and employees) against "unfair practices".

A. Structural and Functional Changes

1. In the NLRB

Section 3 of the Taft-Hartley Act requires drastic changes in the methods of enforcement and administration prescribed by the Wagner Act. Those changes were concisely described and their significance was appraised by Paul M. Herzog, Chairman of the National Labor Relations Board, in an address on "The NLRB and Its New Responsibilities" delivered before the American Management Association, in New York, on October 2, 1947.* Mr. Herzog said:

> It (the new statute) made radical changes in the structure of the Board. It not only enlarged the Board from three Members to five, but established the position of a Presidentially-appointed and partly independent General Counsel.[1] No such officer exists in any other administrative tribunal. It was therefore only natural for the Board to devote much of its energy during the early weeks to the pioneering task of devising new administrative procedures which would both implement the intent of Congress and make for operating efficiency. Some of these problems are not susceptible of easy solution, but I think it safe to report that we are well on our way.

*Reported in a National Labor Relations Board Release (R-5) dated October 2, 1947, pages 2-3.

[1]See Section 3(d) of the Statute and the Senate-House Conference Report on H.R.3020 (80th Congress, 1st Session), at p. 37.

Several objectives had to be kept in mind. In the first place, the unfettered independence of the General Counsel in investigating and prosecuting unfair labor practice cases was axiomatic under the provisions of the new law. Second, it was necessary to preserve the Board's own ultimate responsibility for the administration and interpretation of the statute as a whole, and its continuing responsibility for the conduct of representation (election) proceedings. Third, it was essential to accomplish these things without either imposing on the taxpayers the burden of having two entirely separate staffs in the Board's field offices, or creating a single hybrid field staff—responsible to the General Counsel for day-to-day operations but beholden to the Board Members for appointment and tenure. A practical solution was called for. The Board therefore made an agreement with the General Counsel that was premised upon his statutory authority to supervise the field and most of the legal staff, and to prosecute unfair labor practice cases without interference by the Board. We delegated to him the additional duty of processing representation cases in the field as the Board's agent, the power to select the personnel in our Regional Offices, and the responsibility of enforcing the Board's decisions in the Federal Courts. It was understood that so much of this authority as it delegated could be revoked by the Board at any time.

In his remarks, before the Labor Relations Section of The American Bar Association, September 23rd, Robert N. Denham, General Counsel of the NLRB also described this system of collaboration between the Board and the General Counsel, and his explanation tallies with that made by Mr Herzog. Mr. Denham, speaking from the lawyer's viewpoint also explained how this arrangement seems to conform to the intent of Congress. This is Mr. Denham's statement [NLRB release (R-4) dated Sept. 23, p. 5:]

From the beginning, the Board and the General Counsel recognized that in the last analysis, Congress was attempting to set the Board itself apart as a division of the Agency which would be wholly divorced from every function except those of a decisional nature. In some of the floor comments, it was stated that this Act would make the Board's functions exclusively those of a labor court. It was quickly determined that the most effective and efficient method by which this could be accomplished, would be for the Board to divest itself of the responsibility for purely administrative operations, to delegate to the General Counsel the responsibility for handling the activities incident to the processing of representation matters, except those that were of a purely decisional nature, and to charge the General Counsel with full responsibility for the conduct of all litigation in which the Board and any of its Members or officers should become engaged. . . . Such a division of the functions remaining unallocated by the statute was promptly made, and today the National Labor Relations Board, that is to say the five men provided for in the Act, constitute a tribunal which has no contact or control over the investigative or prosecution functions of the Board, and which, with its own staff completely divorced from the office of the General Counsel, confines itself to the decisional function alone and the making of such policy as those decisions reflect. No longer may it be said of the National Labor Relations Board that it is prosecutor jury and judge.

That the arrangement worked out by the Board and the General Counsel is consistent with the intent of Congress, as evidenced in Section 3 of the Act, may be inferred in the following quotation from the Conference Committee's report, pages 37-38, which was cited by Mr. Herzog:

The combination of the provisions dealing with the authority of the General Counsel, the provision abolishing the Board's review division, and the provisions relating to the trial examiners and their reports effectively limits the Board to the performance of quasi-judicial functions.

In his address to the Management Association (which we have quoted) Chairman Herzog rather humorously confirmed the limiting effect of these provisions of Sec. 3 and the allocation of powers and duties under it. He observed that his remarks had been confined to "administrative problems

and the handling of cases left over from the Wagner Act," and continued, in good humored but astringent fashion as follows: [NLRB Release R-5, p. 11]

As of October, 1947, I am qualified to speak of little else. No cases arising wholly under the Labor Management Relations Act have reached the Board for ultimate decision, nor are many likely to do so for months to come. The Board Members, being limited by the statute largely to judicial functions, cannot now comment upon the manifold new issues that are already coming to the attention of the Regional Offices and the General Counsel. As an administrative officer, the General Counsel is in an appropriate position to express views on some of these issues; as judicial officers, we are not. This follows inevitably from the assembly-line character of the Board's operations. The Board Members stand at the end of that line; we cannot process anything until it has passed through the earlier stages. When that time comes, we will have our say; until it comes, we must perforce remain silent.

It was on October 2nd that Mr. Herzog, Chairman of the NLRB thus rather ruefully explained the silence of the NLRB in respect to features of the Act which had not yet officially come to the attention of the Board.

Mr. Denham, General Counsel, in his address to the American Bar Association on September 23rd, had taken the very firm position that Section 9(h) of the Taft-Hartley Act, requiring labor union heads to file affidavits disavowing membership or belief in the principles of the Communist Party, applied to the top-level officers of the AF of L and the CIO as well as to the heads of the constituent "national or international unions".

The NLRB "had its say" (as Mr. Herzog predicted it would) when the *Matter of Northern Virginia Broadcasters, Inc.*, had traveled down the "Assembly line" and via an appeal had reached the NLRB at its end. A regional director had dismissed a petition for an election filed by Local No. 1215 of the International Brotherhood of Electrical Workers (AFL) although the national union and the local had complied with Section 9, subsections (f)(g) and (h) of the Act. It was dismissed because officers of the parent organization, American Federation of Labor, had not complied. The Regional Director had followed the General Counsel's interpretation of Section 9(h). If the ruling had been made in connection with an "unfair practice charge" it would undoubtedly have been upheld by the General Counsel who is the final authority in the "issuance of complaints" in unfair practice cases.

But this was a "representation" matter. Regional Officers, who are under supervision of the General Counsel, merely "process" representation matters; decisions, ultimately, are made by the NLRB. Thus, on October 7th, when the Board finally had its say, it overruled the decision of the Regional Director and reinstated the petition for an election. This situation neatly illustrates the division of authority between the NLRB and General Counsel established by the Act.

Title I clearly assigns certain functions to the General Counsel and seems to reserve the remainder for the National Labor Relations Board. As the General Counsel observed, the Act has left some "bare spots" which

the NLRB has filled in, under authority granted in Section 3(d), by assigning duties to the General Counsel and delegating corresponding powers.

2. Establishment of New Agencies and New Functions

Titles II and III, as we have shown in Part IV of this treatise, vastly extend the scope of the Government's power to regulate labor-management relations. The new responsibilities and powers assumed by the Federal Government in these sections of the Act are not entrusted to the NLRB or the General Counsel.

Title II creates an independent agency to be known as the "Federal Mediation and Conciliation Service", under direction of a Federal Mediation and Conciliation Director, appointed by the President.* A new statement of policy prefaces Title II, which deals entirely with the procedures of making and maintaining collective-bargaining agreements, and removal of obstacles to these two procedures, in the interest of industrial peace, and to safeguard labor, management and the public. The "Service" is assigned duties in connection with ordinary labor disputes and other agencies are authorized to aid the Service in settlement of disputes which might precipitate national emergencies.

The President of the United States is authorized by Title II, Sec. 205 to establish a National Labor-Management Panel.

. . . To advise in the avoidance of industrial controversies and the manner in which mediation and voluntary adjustment shall be administered, particularly with reference to controversies affecting the general welfare of the country.

Section 206 (Title II of the Act), which deals with labor controversies that might precipitate "national emergencies" authorizes the President to appoint a *"Board of Inquiry"* to inquire into the issues involved in the dispute and to make a written report to him within such time as he shall prescribe. On basis of such a report, the President is authorized to direct the *Attorney General* of the United States to petition any District Court of the United States having jurisdiction of the parties to enjoin such strike or lockout. The Federal Mediation and Conciliation Service, during the ensuing 60 days is directed to make every effort to effect a peaceful settlement of the issue. When the injunction is issued, the *Board of Inquiry* is also reconvened. If the controversy is unsettled at the end of 60 days, the Board of Inquiry reports to the President the employer's "last offer of settlement".

At this point, the *National Labor Relations Board* is called upon for the only service imposed upon it by Title II of the Act. The Board conducts a referendum vote, by secret ballot, of all the members of the union involved in the dispute with regard to acceptance or rejection of the employer's last offer of settlement. This vote must be taken within 15 days after the Board of Inquiry has reported that the preceding 60 days of negotiation have not brought agreement between the parties. The Board has another 5 days in which to check returns and report the result of the referendum. Thus at

*With consent of Senate.

the end of 80 days the injunction must be dissolved. If no settlement has been reached, the President is authorized to bring the controversy to the attention of Congress by means of a full and comprehensive report on the entire procedure prescribed in Sections 206-209.

No new duties or functions of the NLRB or General Counsel are set forth in Title III. The Federal Courts bear the entire responsibility, except that Section 303 covers certain practices of labor unions which have already been proscribed [in Section 8(b) (4) of Title I] as "unfair practices". Title I, Section 8(b)(4) confers on the General Counsel the right to investigate such "unfair practices" and petition the courts for injunctions under certain conditions. Title III makes these practices "unlawful" and prescribes that whoever shall be injured in his business or property by such illegal actions may sue to recover damages sustained by him.

Section 302 sets up definite restrictions on "welfare" or "trust" funds, and provides that violation of these rules shall be a misdemeanor, and that the person guilty of such misdemeanor shall be subject to a fine of $10,000 and/or imprisonment for not more than one year.

Section 304, Title III, amends the Federal Corrupt Practices Act to outlaw political contributions by labor unions in connection with nomination or election of any Federal officials.

B. Specific Procedures Prescribed by the Act and by the Rules and Regulations of the NLRB

We have thus far considered the sections of the Act which create and empower specific agencies to administer and enforce the statute, and impose new duties on our Courts in connection with labor practices and controversies. We have not attempted to elaborate on the specific procedures of administration and enforcement which will eventually be established. We have drawn an outline—we would not presume at this time to attempt to fill it in. Employer technologists must look to experts for guidance as they claim the protection afforded by Title III and conform to the requirements of Title II. Here we shall deal with some of the practical rules and regulations that have already been established by the NLRB under Title I which directly affect professional employees—rules that implement Section 8 and Section 9 of the Act.

1. Unfair Practice Cases

The NLRB has become a quasi-judicial agency in respect to unfair practice cases; it acts, virtually, as a court of labor relations in such cases. It does not investigate charges. This is the responsibility of the General Counsel. His also is the exclusive power to decide, after investigation, whether a complaint shall issue, thereby bringing such cases to a hearing before the NLRB or its regional agencies. The NLRB has, therefore, no opportunity to pass upon the validity of charges of unfair practice that may be filed by employers, employees, or labor organizations unless and until

the General Counsel issues a complaint. Up to this point, the authority of the General Counsel is absolute and independent of the Board. But the Board has the power to decide whether the person or organization named in the complaint has been guilty of an unfair practice, as charged. The General Counsel acts as prosecutor in the "labor court". The Board's functions are "decisional".

Decisions of the Board in unfair practice cases are known as final orders. Unless the person or organization found guilty of unfair practice voluntarily obeys, the Board may appeal to Federal Courts for enforcement of its orders. But the person or organization to whom a final order of the Board is directed has the right of appeal. This account of procedure in unfair practice cases is perhaps oversimplified, but it is not practical to detail the procedure here.

Few professional employees and independent labor organizations have filed unfair practice charges under the Wagner Act, except for the technical charge of "refusal to bargain" [under Section 8(5)] which has served to initiate a "question concerning representation". Section 8(b)(1) of the new Act probably will occasion the filing of charges by groups of professional employees, acting either as individuals, though concertedly, or as an "independent labor organization".

Inasmuch as individual employees may file charges of "restraint or coercion" against any labor organization that interferes with their exercise of rights under Section 7, it seems logical that those professional employees who prefer to "refrain" from exercising such rights may file charges against any organization that attempts to compel them to sign authorization cards and accept its representation. Unfortunately, the Act is not at all explicit in regard to the exact procedures by which employees may claim the privilege (underwritten by Section 7), of "refraining" from forming, joining or assisting labor organizations, and other concerted activities related to collective bargaining. Actually, of course, professional employees enjoy this privilege of "refraining" until some compulsion is brought to bear to force them to join a labor organization or accept it as their representative in collective bargaining.

Section 7, therefore, should strengthen the position of professional employees who may file an unfair practice charge under Section 8(b)(1), if they can show that a labor organization has exerted improper pressure in an effort to force them to join or participate in collective bargaining activities, in disregard of their desire to "refrain" from any or all such activities. The possible interoperation of Section 7 and Section 8(b)(1) should be thoroughly explored by professional employees who are subject to coercion within the meaning of Section 8(b)(1), because the NLRB, so far as we know, has not, in its rules and regulations, taken cognizance of the logical relationship between these provisions.

2. In Representation Cases

Professional employees who desire only to be "severed" from a heterogeneous unit and who do not desire to become a labor organization, within the meaning of the Act, should also explore thoroughly the possible interoperation of Section 7, Section 9(b)(1) and Section 9(c)(1)(A)(ii). Heretofore, professional employees have formed "labor organizations" although the employees in those organizations had no desire to engage in bona fide collective bargaining. Many of the "independent labor organizations" formed by "professional employees" were defense mechanisms. Such organizations were intended only to insure "autonomy"—to prevent inclusion of the professional employees in heterogeneous units and to block the effort of some other organizations which had attempted or might attempt to become certified as the representative of professional employees. Pseudo-labor organizations of this kind have been formed by professional employees also to enable them to "secede" from an established bargaining unit.

If professional employees can firmly link Section 7's guarantee of their right to "refrain" with Section 9's special privileges and its basic rights, there will be no necessity for pseudo-labor organizations. Section 9(c)(1)(A)(ii) permits them as individuals (acting through a spokesman or committee) to seek "severance" from an established heterogeneous unit, by the device of filing a petition for "de-certification" of the representative of that unit. They need not pretend, if they can make substantial the right in Section 7, that they intend to form a new bargaining unit.

This, however, is a procedure that professional employees must themselves develop; there is nothing in the Board's new rules, to our knowledge, that specifically recognizes the inter-relation between Section 7 and the rules the Board has made for the procedure of "de-certification". All employees who desire to "secede" must establish their right to "severance" by demonstrating that they are, within the meaning of Section 2(12) "professional employees" and entitled, under Section 9(b)(1) to vote on the issue of inclusion in a heterogeneous unit, when as a result of a de-certification proceeding, the Board re-defines the bargaining unit.

The fate of all the employees in the "professional unit" defined by the Board will be determined by the will of the majority of professional employees in the unit. Section 7 does not guarantee that individuals may "exercise" or "refrain" from exercising the rights guaranteed in that section in contravention of the will of the majority of their professional co-workers who constitute, in accordance with Section 2(12) and Section 9(b)(1) an "appropriate unit". Section 7 and Section 9, in conjunction should safeguard the rights of minority groups of professional employees, but together they do not insure individuals the right to flout the will of the majority.

If "professional employees" desire to organize and engage in bona fide collective bargaining, they must adhere to all the requirements of the Act and all the rules of the Board which implement those requirements. It must

be remembered that the Board is still the final judge of the "existence of a question concerning representation". It must be remembered that its decisions in representation matters are not, technically, "final orders" and hence are not directly reviewable in the Courts. These matters are discussed in painstaking detail in *Technologists' Stake in the Wagner Act*, Chapter 3. The simple procedure of "initiating a representation case"—leading to NLRB approval of the scope of a unit and certification of its representative—is clearly prescribed in the Board's own "Rules and Regulations". Professional employees have access to these Rules and Regulations in regional offices. There, too, they may obtain proper forms for filing petitions to invoke these services of the Board. No useful purpose will be served by reproducing those rules here.

The Act does not instruct professional employees in the preliminary steps that must be taken before filing these petitions, nor do the rules of the Board. It is not the business of the Board to tutor professional employees in the business of *forming* a labor organization. Nevertheless, there are definite tests which must be met at the time petitions are filed which have a direct bearing on preliminary organization. In the past the Board has required evidence that the labor organization petitioning for certification actually represents a substantial number of employees in the unit which it alleges to be appropriate, and that the labor organization is specifically authorized to *bargain* for these workers. Authorization cards, signed by individual members have been the most satisfactory evidence of these facts.

In deciding whether the petitioning organization is a "labor organization" within the meaning of the Act, and capable of effectuating its purposes, the Board has appraised (1) the activities of such organizations and (2) the objectives set forth in their constitutions.

These are still important factors, although the Board's discretion has been curbed, as we have shown, by Sections 9(c)(5) and 9(c)(2). New requirements, however, have been imposed by Section 9, subsections (f)(g) and (h), compliance with which is an absolute prerequisite for invoking the services of the Board in connection with unfair practice or representation matters. No complaint is issued in connection with a charge of unfair practice and no petition for investigation of a question concerning representation is processed, unless the labor organization bringing such charge or filing such petition has met the "filing requirements" imposed in Section 9, subsections (f)(g) and (h). On October 29, the NLRB, in the Matter of The Kinsman Transit Company, handed down its first election decision involving the question of compliance with "filing requirements" in which it ruled that a non-complying union cannot appear on the ballot in an election sought by a complying union. In the *Matter of Herman Loewenstein, Inc.*, it was the employer who petitioned for an investigation of a "question concerning representation", in which two unions—one a non-complying union,

the other a complying union—claimed the right to represent his employees. The Board refused to place on the ballot the name of the non-complying union.

The requirements are set forth in such straightforward manner that it is unnecessary to comment upon them. We shall simply publish the text of Section 9, subsections (f) (g) and (h), and thereby warn all "independent labor organizations" that expect to claim protection under Section 8, or exercise rights prescribed in Section 9, that they must comply.

Those professional employees, who merely seek "severance" from a heterogeneous unit, and who have no intention of forming a bona fide labor organization and bargaining, are warned to avoid any suggestion that they constitute a "labor organization" when they file petitions for "de-certification" of their representative. If they represent themselves as constituting a "labor organization" within the meaning of the Act, they must conform to the "filing requirements" of Section 9, subsections (f) (g) and (h) before filing a petition for "de-certification" of their representative. If as individuals (even though acting through a temporary "committee" or spokesman) they petition for "de-certification" it seems unlikely that the "filing requirements" apply—though there is no specific reference to this situation in the rules of the Board.

Filing Requirements

Section 9 (b) (g) (h)

"(f) No investigation shall be made by the Board of any question affecting commerce concerning the representation of employees, raised by a labor organization under subsection (c) of this section, no petition under section 9 (e) (1) shall be entertained, and no complaint shall be issued pursuant to a charge made by a labor organization under sub-section (b) of section 10, *unless* such labor organization and any national or international labor organization of which such labor organization is an affiliate or constituent unit (A) shall have *prior* thereto filed with the Secretary of Labor copies of its constitution and bylaws and a report, in such form as the Secretary may prescribe, showing—

"(1) the name of such labor organization and the address of its principal place of business;

"(2) the names, titles, and compensation and allowances of its three principal officers and of any of its other officers or agents whose aggregate compensation and allowances for the preceding year exceeded $5,000, and the amount of the compensation and allowances paid to each such officer or agent during such year;

"(3) the manner in which the officers and agents referred to in clause (2) were elected, appointed, or otherwise selected;

"(4) the initiation fee or fees which new members are required to pay on becoming members of such labor organization;

"(5) the regular dues or fees which members are required to pay in order to remain members in good standing of such labor organization;

"(6) a detailed statement of, or reference to provisions of its constitution and bylaws showing the procedure followed with respect to, (a) qualification for or restrictions on membership, (b) election of officers and stewards, (c) calling of regular and special meetings, (d) levying of assessments, (e) imposition of fines. (f) authorization for bargaining demands, (g) ratification of contract terms, (h) authorization for strikes, (i) authorization for disbursement of union funds, (j) audit of union financial transactions, (k) participation in insurance or other benefit plans, and (l) expulsion of members and the grounds therefor;

and (B) can show that prior thereto it has—

"(1) filed with the Secretary of Labor, in such form as the Secretary may prescribe, a report showing all of (a) its receipts of any kind and the sources of such receipts, (b) its total assets and liabilities as of the end of its last fiscal year, (c) the disbursements made by it during such fiscal year, including the purposes for which made; and

"(2) furnished to all of the members of such labor organization copies of the financial report required by paragraph (1) hereof to be filed with the Secretary of Labor.

"(g) It shall be the obligation of all labor organizations to file annually with the Secretary of Labor, in such form as the Secretary of Labor may prescribe, reports bringing up to date the information required to be suppied in the initial filing by subsection (f) (A) of this section, and to *file* with the Secretary of Labor and *furnish to its members annually* financial reports in the form and manner prescribed in subsection (f) (B). No labor organization shall be eligible for certification under this section as the representative of any employees, no petition under section 9(e) (1) shall be entertained, and no complaint shall issue under section 10 with respect to a charge filed by a labor organization unless it can show that it and any national or international labor organization of

which it is an affiliate or constituent unit has complied with its obligation under this subsection.

"(h) No investigation shall be made by the Board of any question affecting commerce concerning the representation of employees, raised by a labor organization under subsection (c) of this section (9), no petition under section 9 (e) (1) shall be entertained, and no complaint shall be issued pursuant to a charge made by a labor organization under subsection (b) of Section 10, unless there is on file with the Board an affidavit executed contemporaneously or within the preceding twelve-month period by *each officer* of such labor organization and the officers of any national or international labor organization of which it is an affiliate or constituent unit that he is not a member of the Communist Party or affiliated with such party, and that he does not believe in, and is not a member of or supports any organization that believes in or teaches, the overthrow of the United States Government by force or by any illegal or unconstitutional methods. The provisions of section 35 A of the Criminal Code shall be applicable in respect to such affidavits.

Despite the clarity of these subsections of the Act, Robert N. Denham, General Counsel of the NLRB, issued a statement on November 30, 1947 (Release, R-23) that 30% of local and international unions have "incorrectly executed" the reports required by Section 9, subsections (f)(g) and (h). The most common errors are those made in connection with the requirements of Section 9(g).

Mr. Denham notes that Section 9(f) Subsection (B)(1) directs that each complying union file with the Secretary of Labor "a balance sheet as of the end of the last fiscal year, and an operating statement for the year". Subsection (B)(2), however, requires that the same "balance sheet" be furnished to the individual members of the union. The requirements have not been met, according to regulations of the Board, if the union only posts a copy on a bulletin board. If this method is used, it must be supplemented by an announcement at a regular meeting that individuals may, on request, obtain copies. Other approved methods are: the union may mail copies to members; may publish the "balance sheet" in a house organ which is distributed to *all* members of the union; may print it in a bulletin which is distributed in regular course to all members.

Section (9), Subsection (g) requires that a similar, detailed financial report be (1) filed annually with the Secretary of Labor in the form prescribed by that department, and (2) furnished each member of the union, annually, in accordance with the regulations, governing compliance with Section 9(f), Subsection (B)(2), which were reported in the preceding paragraph. Not only must the report be filed annually with the Secretary of Labor and furnished to individual members of the union; the union must also furnish evidence to the nearest Regional Office of the NLRB that it has complied with both these requirements. Many unions have made the mistake of sending all reports required under Section (9), Subsections (f)(g) and (h) to the Board in Washington, which is the correct procedure *only* for International Unions. Local unions must file these reports with the nearest Regional Office. We shall publish in the appendix a list of Regional Offices of the NLRB, indicating the territory over which each office has jurisdiction, in order that independent labor organizations of professional employees may know where to submit *evidence* of compliance with "filing requirements."

3. Procedure of Bargaining

We shall not attempt to analyze the regulations which the Act has imposed on the activities of labor organizations. We prefer to believe that

few "independent labor organizations" will run afoul of the restriction imposed by Section 8(b) of the Act, and that they will voluntarily comply with regulations imposed by Title III, Section 302. We suggest that independent labor organizations study carefully the definition of "collective bargaining" found in Section 8(d) and the requirements with regard to "modification and termination of existing contracts" set forth in that section. These are the requirements of the Act which will most directly affect independent labor organizations, in the course of ordinary bargaining activities. For that reason we here reproduce Section 8(d).

Bargaining Defined

"(d) For the purposes of this section, to bargain collectively is the performance of the mutual obligation of the employer and the representative of the employees to meet at reasonable times and confer in good faith with respect to wages, hours, and other terms and conditions of employment, or the negotiation of an agreement, or any question arising thereunder, and the execution of a written contract incorporating any agreement reached if requested by either party, but such obligation does not compel either party to agree to a proposal or require the making of a concession: Provided, That where there is in effect a collective-bargaining contract covering employees in an industry affecting commerce, the duty to bargain collectively shall also mean that no party to such contract shall terminate or modify such contract, unless the party desiring such termination or modification—

"(1) serves a written notice upon the other party to the contract of the proposed termination or modification sixty days prior to the expiration date thereof, or in the event such contract contains no expiration date, sixty days prior to the time it is proposed to make such termination or modification;

"(2) offers to meet to confer with the other party for the purpose of negotiating a new contract or a contract containing the proposed modifications;

"(3) notifies the Federal Mediation and Conciliation Service within thirty days after such notice of the existence of a dispute, and simultaneously therewith notifies any State or Territorial agency established to mediate and conciliate disputes within the State or Territory where the dispute occurred, provided no agreement has been reached by that time; and

"(4) continues in full force and effect, without resorting to strike or lock-out, all the terms and conditions of the existing contract for a period of sixty days after such notice is given or until the expiration date of such contract, whichever occurs later."

Rights of Individual Members of Labor Organizations

Professional employees, who are members of bargaining units, should note certain protection which the Act affords them from arbitrary requirements that may be imposed by their own labor organizations. These are found in Section 8(a)(3), Section 8(b)(2) and Section 9(e). They deal with authority for "union shop" contracts. They rule out such agreements unless they are authorized by a majority of the employees covered by such agreements. They place upon the NLRB the responsibility for ascertaining the will of the majority; they make the General Counsel responsible for enforcing Section 8(a)(3) and 8(b)(2) which set forth all the conditions governing union shop agreements and their operations. If any of these rules are violated professional employees, as individuals, may file charges of unfair practice, following procedures prescribed by the Board.

Title III, Section 302 pertains to the "check-off". It forbids an employer to deduct money from the wages of employees in payment of membership dues in a labor organization, unless the employer has received from each employee, on whose account such deductions are made, a written assignment—and such authorization cannot remain in force for a period longer than one year, or beyond the termination of a bargaining agreement which covers the "check-off", whichever is shorter. This is protection which applies directly to individuals, and can be invoked by an appeal to Federal Courts for a restraining order.

Although American Association of Engineers believes that it is far too early to make any searching analysis of the provisions of the Taft-Hartley Act, which, extending the scope of the Wagner Act, give the government vast authority to regulate the activities and internal affairs of labor unions, it has, in this section, outlined the administrative structure established by the Act, and noted those requirements with which technologists must immediately comply. We have pointed out the enforcement agencies responsible for administering and enforcing provisions in each of the major divisions (Titles) of the Act. We have shown, in other words, the agencies to which technologists have recourse in seeking the protection and benefits of the Taft-Hartley Act. We have shown how specific provisions, applicable to "professional employees" are grounded in the fundamental policies and purposes of the statute, and how they may be affected by the greatly increased scope of Federal authority which conforms to the new policies and purposes. At this time, we can do no more—except to wish them "good going" and "happy landings" under the new Labor Management Relations Act.

This is the third and final instalment of Technologists' Stake in the Taft Hartley Act; the earlier instalments appeared in the December, 1947 and March, 1948, issues of Professional Engineer.

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Aerodynamics of Suspension Bridges

Dr. D. B. STEINMAN, Consulting Engineer

In a brochure, written in his usual crystal clear style, Dr. Steinman warns that "when progress is rapid—too rapidly accelerated—we may expect new problems to be discovered, sometimes with the impact of catastrophe." He notes that the decade ending in 1940 witnessed more rapid progress in bridge building, as measured by lengthening spans, boldness of proportions, and increasing magnitude of projects, than all the centuries preceding. This statement he supports with statistics and then proceeds to point out some of the problems that have resulted from greatly accelerated progress in bridge building.